

INSTRUCTION MANUAL

HI783 Marine Magnesium



Recommendations for Users

Before using this product, make sure it is entirely suitable for your specific application and for the environment in which it is used. Any variation introduced by the user to the supplied equipment may degrade the checker's performance. For your and the checker's safety do not use or store it in hazardous environments.

Warranty

HI783 Checker HC is warranted for a period of one year against defects in workmanship and materials when used for its intended purpose and maintained according to instructions. This warranty is limited to repair or replacement free of charge. Damage due to accidents, misuse, tampering, or lack of prescribed maintenance is not covered. If service is required, contact your local Hanna Instruments® office. If under warranty, report the model number, date of purchase, serial number, and the nature of the problem. If the repair is not covered by the warranty, you will be notified of the charges incurred. If the checker is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization (RGA) number from the Technical Service department and then send it with shipping costs prepaid. When shipping any product, make sure it is properly packaged for complete protection.

Hanna Instruments reserves the right to modify the design, construction, or appearance of its products without advance notice.

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To save the battery, the checker shuts down after 10 minutes of non-use. A fresh battery lasts for a minimum of 5000 measurements.

Accessories

Reagent Sets

HI783-25 Reagents for 25 Marine Magnesium tests

Other Accessories

HI783-11 Marine Magnesium certified standard kit

HI731315 Glass cuvette and cap for Checker® HC colorimeters (2 pcs.)

HI731318 Cloth for wiping cuvettes (4 pcs.)

HI740028P 1.5V AAA battery set (12 pcs.)

HI740143 1 mL graduated syringe (6 pcs.)

HI740144P Plastic pipette tip (6 pcs.)

HI740226 5 mL graduated syringe with black printing (1 pc.)

HI740237 5 mL graduated syringe with blue printing (1 pc.)

HI740274 Syringe replacement kit

HI93703-50 Cuvette cleaning solution, 230 mL

Certification

All Hanna® instruments conform to the **CE European Directives**.

Disposal of Electrical & Electronic Equipment. The product should not be treated as household waste. Instead, hand it over to the appropriate collection point for the recycling of electrical and electronic equipment, which will conserve natural resources.

Disposal of waste batteries. This product contains batteries, do not dispose of them with other household waste. Hand them over to the appropriate collection point for recycling.

Ensuring proper product and battery disposal prevents potential negative consequences for the environment and human health. For more information, contact your city, your local household waste disposal service, or the place of purchase.

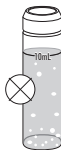
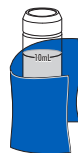
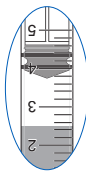


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Tips for an Accurate Measurement

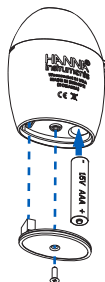
- Measure liquids accurately by syringe by drawing up the plunger until the bottom seal of the plunger is at the desired volume mark. Do NOT raise the liquid to the mark as this will give a false high volume. An air gap between the plunger and liquid is normal. See image at the right.
- Always use clean, dry cuvettes and syringes/tips. Rinse with deionized (RODI) water only; never rinse with tank water. Dry the cuvettes before use to prevent dilution.
- Ensure the sample does not contain any debris.
- Whenever the cuvette is placed into the checker, it must be dry outside and free of fingerprints, oil and dirt.
- Wipe the cuvette thoroughly with **HI731318** microfiber cleaning cloth or a lint-free cloth prior to insertion.
- Shaking the cuvette can generate bubbles, causing higher readings. To obtain accurate measurements, remove such bubbles by swirling or by gently tapping the cuvette.
- Do not let the reacted sample stand too long after reagent has been added, as accuracy will be affected.
- Discard the sample immediately after the reading has been taken or the glass might become permanently stained.
- Keep the tips with their appropriate syringes during measurement. Clean the syringes and tips before storage.



Battery Replacement

When the battery is drained, the instrument displays "bAd" then "bAt", and turns off. To replace the battery, follow the next steps:

1. Press and hold the ON/OFF button to turn the checker off.
2. Turn the instrument upside down and use a screwdriver to unfasten the screw and remove the battery cover.
3. Remove the old battery, replace it with a new 1.5V AAA battery, inserting the negative end first.
4. Replace the battery cover, fasten and tighten the screw.



Dear Customer,

Thank you for choosing a Hanna Instruments® product. Please read this instruction manual carefully before using the Checker® HC handheld colorimeter. For more information about Hanna Instruments and our products, visit www.hannainst.com or e-mail us at sales@hannainst.com. For technical support, contact your local Hanna Instruments office or e-mail us at tech@hannainst.com.

Preliminary Examination

Remove the Checker HC handheld colorimeter and accessories from the packing material and examine it carefully. If you require any further information, please contact Hanna Instruments technical support team.

Each **HI783** is delivered in a case with custom insert and is supplied with:

- Sample cuvette and cap (2 pcs.)
- Marine Magnesium reagent starter kit (reagents for 25 tests)
- 1 mL graduated syringe and tip (1 pc.)
- 5 mL syringe and tip with black printing (1 pc.)
- 5 mL syringe and tip with blue printing (1 pc.)
- 1.5V AAA Alkaline battery (1 pc.)
- Instruction manual
- Quick-reference guide

Note: Save all packing material until you are sure that the Checker HC handheld colorimeter works correctly. Any damaged or defective item must be returned in its original packing material with the supplied accessories.

General Description & Intended Use

HI783 Marine Magnesium handheld checker is designed to determine the concentration of magnesium in saltwater aquariums.

HI783 features a single-button operation system and is easy to use.

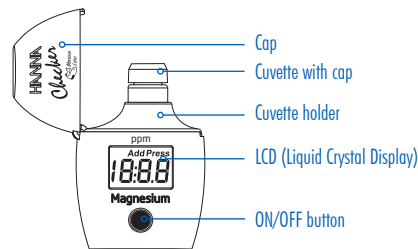
The large LCD is easy to read and the auto shut-off feature assures the battery will not be drained.

Specifications

Range	1000 to 1800 ppm Magnesium
Resolution	5 ppm
Accuracy	± 5% of reading @ 25 °C (77 °F)
Light source	Light Emitting Diode @ 610 nm
Light detector	Silicon photocell
Method	Adaptation of the colorimetric EDTA method using calmagite indicator. The reaction between magnesium and the reagents causes a blue to violet tint in the sample.
Environment	0 to 50 °C (32 to 122 °F); max. 95% RH non-condensing Prepared sample cuvette (sample plus reagents) must be 18 to 28 °C (64 to 82 °F).*
Battery type	1.5V AAA Alkaline
Auto shut-off	After 10 minutes of non-use
Dimensions	86.0 x 61.0 x 37.5 mm (3.4 x 2.4 x 1.5")
Weight	64 g (2.3 oz)
Interferences	Calcium below 300 ppm and above 500 ppm

* Warm or cool prepared cuvettes if needed.

Functional Description & LCD Display



Measurement Procedure

1. Ensure cuvettes, syringes, and tips are completely clean and dry before use. See reverse side for tips on measuring liquids using syringes.
2. Press the ON/OFF button to turn the checker on. All segments will be displayed for a few seconds, followed by "Add", "C.1" with "Press" blinking.

3. Preparing the cuvette for "C.1" measurements:
 - Place the syringe tips onto each syringe. Ensure the O-rings remain in the tip for a proper seal.
 - Use the 5 mL syringe with black printing to measure 4 mL of **HI783A-0** reagent. Ensure there is no excess reagent on the syringe tip, then slowly dispense the 4 mL of reagent into a clean, dry cuvette. If excessive reagent remains in the tip, draw a small amount of air into the syringe and use it to expel the remaining reagent into the cuvette.
 - Use the 5 mL syringe with blue printing to measure 5 mL of unreacted sample. Ensure there is no excess sample on the syringe tip, then slowly dispense the sample into the same cuvette. Ensure no sample is remaining in the tip.

Note: The total liquid volume will be below the 10 mL mark at this step.

 - Screw the cap on and gently invert the cuvette 5 times, until the solution has been thoroughly mixed. Ensure there are no bubbles in the mixture and that the outside of the cuvette is dry and clean.
 - Insert the cuvette into the checker and close the cap.
 - Press the ON/OFF button. When the display shows "Add", "C.2" with "Press" blinking, the checker is zeroed. Remove the cuvette.
4. Preparing the cuvette for "C.2" measurements:
 - Unscrew the cap and use the 1 mL syringe to dispense 1 mL of **HI783B-0** reagent into the cuvette. Gently clean any excess liquid outside of the tip. Ensure no liquid is left in the tip. Screw the cap onto the cuvette.

- Gently invert the cuvette 5 times until the solution has been thoroughly mixed. For the most accurate reading, ensure there are no visible bubbles.
- Insert the cuvette into the checker and close the cap.

5. Press ON/OFF button. The instrument displays the ppm of magnesium. The checker automatically turns off 10 minutes after reading.

6. Rinse cuvettes, caps, syringes, and tips thoroughly with deionized (RODI) water and allow to dry completely before storing.

Errors & Warnings

The checker shows clear warning messages when erroneous conditions appear and when measured values are outside the expected range. The information below provides an explanation of the errors and warnings, and the recommended action to be taken.

Light High: There is an excess amount of ambient light reaching the detector. Please check the preparation of the zero cuvette.

Light Low: There is not enough light to perform a measurement. Please check the preparation of the zero cuvette.

Under Range: Minimum concentration value displayed blinking indicates the measured value is outside the limits of the method. Verify that the sample does not contain any debris, and the preparation of the sample cuvette.

Over Range: Maximum concentration value displayed blinking indicates the measured value is outside the limits of the method. Verify the preparation of the sample cuvette. Dilute the sample and repeat the measurement.

Battery Low: Battery level is too low for the checker to function properly. Replace the battery with a new one.

Drained Battery: The battery is drained and must be replaced. Replace the battery with a new one and restart the checker.